widely distributed, but the most important deposit, discovered last year, is on the northeast side of 'New Zealand' (*sic*, Tasmania), midway between Enim Bay and Circular Head. The deposit covers an area of 105 acres and has a thickness of 20 centimeters. It is composed almost entirely of zircon and is extracted simply by washing. It runs 62 to 64 per cent. zirconia, with variable quantities of the other rare earths. The author, in conclusion, states that the supply of rare earths tends to increase more and more, and, great as may become the development of incandescent gas-lighting, the demand can never exceed the supply.

IN a paper before the Cambridge Philosophical Society, Messrs. Heycock and Neville continue their studies of alloys, exhibiting Röntgen-ray photographs of plates of various gold alloys. In gold-sodium alloys with less than 30 per cent. gold they consist of well-developed, very transparent crystals of sodium in a matrix which contains gold. Alloys with more than 30 per cent. gold show very opaque needles of gold in a less opaque matrix, which was the same as the matrix of the former alloy. Similar results were obtained with gold-aluminum and gold-copper alloys. The gold-aluminum alloys showed well-defined crystals of Roberts-Austen's compound $AuAl_2$.

IN the *Comptes Rendus* E. Finck describes three compounds formed by the action of carbon monoxid on palladium chlorid, $PdCl_2,CO$, $PdCl_2(CO)_2$, and $(PdCl_2)_2(CO)_3$. These compounds are interesting in that they are analogous to the similar compounds of carbon monoxid with platinous chlorid. J. L. H.

SCIENTIFIC NOTES AND NEWS.

THE RECENT ECLIPSE OF THE SUN.

IN the last number of the *Independent* Professor C. A. Young condenses from the *Observatory* an account of a recent meeting of the Royal Astronomical Society devoted to the solar eclipse at which several of the observers presented preliminary reports of their work, and exhibited some very interesting photographs of the corona, and of various eclipse spectra. Professor Young writes:

According to Professor Turner's photographs (and, of course, all the others agree substantially, which is by no means the case with visual observations of that phenomenon), the corona was of the type expected and predicted for the present stage of the sun-spot period. It had the form of an irregular four-rayed star, with long streamers projecting from the sun-spot zones to a distance considerably exceeding the sun's diameter, and others, shorter and narrower, but more distinct in outline, from the polar regions. In one of the long streamers Professor Turner's polariscopic camera showed distinct polarization, indicating the presence of something besides gas—dust or mist of some kind.

The corona was hardly as bright as usual, so that Mr. Newall did not succeed in his attempt at a spectroscopic determination of its rotation; but Captain Hills, of the Astronomer Royal's party, was able to get fine photographs of its spectrum, and to reobserve the violet lines first detected in 1893, and to determine their position accurately.

He also obtained (and with a *slit*-spectroscope, a new success) excellent photographs of the 'flash spectrum.' It shows hundreds of bright lines, and so far is in entire agreement with the visual observation of the writers' made twenty-seven years ago; but Captain Hills agrees with Sir Norman Lockyer that it cannot be described as a reversal of the Fraunhofer lines, as regarded by most astronomers, because 'the lines have different relative intensities; strong Fraunhofer lines are absent in the flash, and bright lines are present in the latter which are absent, or very faint, in the solar spectrum.' Mr. Fowler, Sir Norman Lockyer's assistant, was also present with his prismatic-camera negatives, and concurred with Captain Hills on this point. Both gentlemen, however, have always been faithful followers of Lockyer in his peculiar views, and took the same ground in regard to Mr. Shackleton's photograph in 1896.

In this case the comparison of the flash-spectrum with an ordinary solar spectrum of the same dispersion seemed to the writer, and to nearly all who made the examination, to indicate that the former was simply a combination of the spectrum of the chromosphere with a reversed Fraunhofer spectrum. In the region of the spectrum covered by the photograph only one conspicuous Fraunhofer line is missing from the flash, and there is no difficulty in plausibly explaining such an absence, or in accounting for the other considerable discrepancies of relative intensity. It is to be hoped that astronomers in general may soon have the opportunity to study some of these new photographs for themselves. It is interesting to note that a little later in the evening Mr. Evershed showed photographs of the violet region of the spectrum, made only eighteen seconds after totality; and in these, 'apparently *every* dark line of the Fraunhofer spectrum ends in a short bright line,' just as it should on the accepted 'reversing layer theory.' Clearly the matter cannot yet be regarded as settled.

In a very real sense the eclipse observations are still going on—in the study, measurement, comparison and discussion of the photographs. These records, authentic and permanent, will probably in time supply such data as will warrant an authoritative decision of the question. Very likely, too, they will go far toward the solution of some of the other 'pending problems' of solar physics, and quite possibly they will present new ones still more perplexing. But the complete and final report cannot be expected for some months yet.

THE PHILADELPHIA ZOOLOGICAL GARDEN.

The annual meeting of the Board of Directors of the Philadelphia Zoological Society was held on April 28th. The report of the Secretary, according to the account in the Philadelphia *Ledger*, stated that there are now 1,981 members, of which number 1,330 are life, 360 annual and 261 perpetual. The record of admissions to the gardens shows 173,999 during the year ending February 28th, which is an increase of 369 over 1897. In addition to these, 125,000 tickets were issued for the pupils of the public schools. The receipts from gate admissions aggregated $23,908.

The report of Treasurer Henry T. Coates shows total receipts of $38,359.11, including $10,000 appropriated by the city; the expenses amounted to $38,191.35, leaving a balance of $167.76. The sum of $3,806.30 was spent for for the purchase of animals.

There are now in the gardens 1,019 living animals, including 339 mammals, 421 birds, 238 reptiles and 21 batrachians. The total number of specimens received during the year was 735. Among the more important acquisitions is a rare species of whip snake, received from Herbert Browne, of Tucson, Arizona.

On April 23d two young West Indian seals were purchased in Pensacola, Fla. The report states that, although the existence of a peculiar species of seal in the Caribbean Sea has long been known, no detailed description had been given of it until very recently, and no living specimens have been secured until a schooner was sent out last spring for the purpose of capturing some, which it finally effected off Yucatan. It was hoped that observations might be made upon the habits of this almost unknown species, but, unfortunately, in all the cases the animals were with difficulty induced to take food, and lived but a short time.

A male dromedary was purchased in Baltimore on the 2d of November, and a few weeks later a female Bactrian camel was received. The original stock of camels of both species, which had been for many years in the gardens, has now entirely disappeared, due largely to continued inbreeding.

The principal loss by death was the male orang 'Chief,' November 3, 1897. This animal was received at the gardens November 16, 1893, and was, perhaps, as fine a specimen of his kind as any which have been exhibited. The autopsy showed the animal to have been in such complete health that the accidental nature of his death was greatly to be regretted. It is worthy of note that, while it has more than once been pronounced by high authority to be anatomically impossible for the orang to maintain an erect attitude without touching some means of support, this animal was repeatedly observed walking about his cage in an abso-

lutely erect position without having his hands in contact with any fixed object.

The outside cages at the new monkey house were erected and put into use during the summer, thus finally completing what is without doubt the most pleasing and well adapted building on the grounds. Plans have been prepared for a house for small mammals, to be erected upon the site of the old monkey house, all of which will be torn down, with the exception of the stone portion of the outer walls.

A large piece of ground lying between the Carnivora House and the eastern main walk has been enclosed by an iron fence, to contain the elk and a similar pen, has been made for common camels on the opposite side of the walk to the west.

A similar construction is projected on the western main walk, opposite the Carnivora House, for Bactrian camels. The removal of the elk and camels from the series of pens on the western side of the gardens has made it possible to give the American buffalo the whole space, measuring some 420 feet in length, with a depth of from 110 to 180 feet. While the conditions afforded by such an enclosure fall far short of those which are to be desired, they are probably as good as can be supplied in a zoological garden of average size, and, on the whole, the condition of the herd of buffalo owned by the Society is most gratifying.

SOLOMON STRICKER.

WE take from an obituary notice in *The British Medical Journal* the following details regarding the life and work of the late Professor Stricker.

Born in 1834 in Waag-Neustadt, in Hungary, he studied in Pressburg and Ofen Pest; afterwards he went to Vienna, where he 'inscribed' as a student of law, but soon turned to medicine. In his second year of medical study he began to work under Brücke (1855–58). In 1858 he graduated as M.D.; in 1859 he became Assistant in the General Hospital, in 1862 a *Privat-docent* for 'Entwicklungsgeschichte,' and in 1863 he again became Assistant to Brücke. In 1865 he published his discovery of the diapedesis of the red blood corpuscles and the contractility of the capillary wall. At the end of the war of 1866 Cohnheim was in Vienna, where began a friendship between these two. In 1866 Oppolzer selected Stricker to develop the experimental method as applied to physiology and pathology in his clinic. Through the strong friendship which sprang up between Stricker and Rokitansky, Stricker in 1868 was nominated professor (extraordinarius) of experimental pathology, with a very modest and limited laboratory. In 1869 appeared his *Studien a. d. Institute f. exp. Pathologie.* In 1870 he visited England, and in 1871 his then assistant, Dr. Klein, came to London.

In 1871–73 appeared his *Handbuch d. Lehre v. d. Geweben d. Menschen u. d. Thiere* (translated in 3 vols., New Sydenham Society, *Human and Comparative Anatomy*). Chiefly through the influence of Rokitansky, Stricker was nominated professor of general and experimental pathology. The chief results of the work done by his pupils in his laboratory were edited by Stricker, and published in the well-known *Med. Jahrbücher* (1871–80). In 1877–83 appeared his *Vorlesungen über allgem. u. exp. Pathologie.*

Stricker recognized the importance of experimentation for the advancement of medicine, and, although in his course in 1883 he confined himself to histological demonstrations, he soon developed an auditorium replete with apparatus for all kinds of experimentation, and so arranged that everyone in the audience could profit thereby. He laid great stress on this subject in his lectures, which were often attended by over 400 students.

Stricker regarded the study of tissues not as an end, but as the means of ascertaining the course of events in living tissues; he studied not so much tissue morphology as tissue physiology, and to this end he invented his 'hot stage.' Stricker, through his pupils, also contributed much to our knowledge of vasomotor nerves, efferent fibres in the posterior roots of spinal nerves, the action of diuretics, the anæsthetic action of cocaine, etc.

Besides strictly medical papers, Stricker published several philosophical works: 'Studien über Bewusstsein' (1879), 'Sprachvorstellung' (1880), 'Bewegungsvorstellung' (1882), 'Association d. Vorstellungen' (1883), and 'Physiologie d. Rechts' (1884).

In all he published 134 papers from his own pen, and under his direction over 400 were published by the pupils—numbering 123—who worked in his laboratory under his direction. Of these pupils 45 are already professors and 17 *Privatdocenten.*

Stricker lived very much apart and went very little into society. What interested him he fought for, regardless of consequences. Perhaps his position in Vienna in later years may be summed up in the words of one of his assistants—Georg Kapsammer—from whose short biographical notice of Stricker most of the above facts are taken: "Stricker's life was one rich in work, rich in results, rich in disputes; rich in luck and honors it was not."

GENERAL.

Professor William James, of Harvard University, has been appointed Gifford lecturer to the University of Edinburgh for the years 1899–1901. He will give two courses of ten lectures each on 'Natural Religion.' Professor James has also been elected correspondent of the Institute of France (Acad. des Sciences morales et politiques).

Professor J. M. Schaeberle has resigned his position as astronomer at the Lick Observatory. The Regents of the University of California have accepted the resignation, to take effect after one year, with leave of absence and salary for the year.

M. Deslandres, whose astrophysical work is well known, has been transferred from the observatory at Paris to the astrophysical observatory at Meudon.

The freedom of the city of Edinburgh will be conferred on Lord Lister on June 15th.

The University of Aberdeen has conferred its LL.D. on Dr. Charles Chree, Superintendent of Kew Observatory. The University of Edinburgh has conferred the same degree on Mr. Horace T. Brown, F.R.S.; Professor D. G. Ritchie and Professor J. V. Carus, of Leipzig.

Dr. H. M. Fernando will, says *Nature*, probably be the Director of the Bacteriological Institute to be opened in Colombo shortly. The final plans for the building have been completed, and the work will be taken in hand at once. It is expected that the Institute will be opened by the beginning of next year.

The Council of the University of Paris has appointed MM. Milne-Edwards and Blanchard delegates from the University to the approaching meeting of the International Zoological Congress.

M. Kunckel d'Herculais, the French naturalist, has, at the request of the Argentine Republic, been entrusted with the establishment and conduct of a bureau of economic entomology at Buenos Ayres.

The Council of the Linnæan Society has, as we have already announced, decided to award the Society's gold medal for the year to Mr. G. C. Wollich, in recognition of his valuable scientific labors connected with the investigations of the biological conditions of the deep sea. Regarding this event the London *Times* relates that it is now nearly forty years since Mr. Wollich accompanied Sir F. L. McClintock in her Majesty's ship *Bulldog* on an expedition despatched by the British government for the preparatory survey of the route for the telegraph cable between England and America. Notwithstanding that dredging was foreign to the object of the expedition, Mr. Wollich obtained materials, slender and fragmentary as they were, which led to his discovery of the existence of a deep-sea fauna. Though some of his opinions and conclusions have not survived the test of subsequent research, many of them have been established on conclusive proof. Dr. John Murray, of the *Challenger*; Dr. Günther, President of the Linnæan Society, and Mr. George Murray, of the Botanical Department of the British Museum, have all borne testimony recently to the value of Mr. Wollich's work.

A committee, with the Mayor of Boulogne as Chairman, has been formed for the purpose of erecting a monument to the memory of 'Duchenne de Boulogne.'

A bust of the late Professor P. Schützenberger was unveiled at the Paris École de physique et de chimie industrielles, of which he was the first Director, on April 3d.

We regret to record the death of Dr. Georg Dragendorff, professor of pharmacy at Rostock, at the age of 62 years, and of Dr. F. Sand-

berger, professor of mineralogy at Würzburg, aged 72 years.

MR. MELVILLE ATWOOD, geologist and metallurgist, died on April 25th, at Berkeley, Cal. He was born in Worcester, Eng., on July 31, 1812, and went to the gold and diamond mines of Brazil at an early age. In 1843 he made a discovery that increased the commercial value of zinc ore. He came to California in 1852, and invented and introduced the blanket system of amalgamation. He was a member of the Academy of Science and of the Microscopical Society of San Francisco, and a Fellow of the Geological Society of London.

REFERRING to the recent death of Professor Aimé Girard at the meeting of the Paris Academy on April 12th, M. Th. Schloesing, according to the translation in *Nature*, remarked: "M. Aimé Girard was the highest authority on chemical and agricultural industries in the Academy. After some valuable scientific work he was nominated professor of industrial chemistry at the Conservatorie des Arts et Métiers, in succession to Payen. His teaching revealed the dominating object of his efforts. Affable and cheerful, loyal and entirely disinterested, he possessed all the attributes required to gain the confidence of manufacturers. The producers whose places he visited, in France and in other countries, became and remained his friends; they gave to him a large amount of information which he used to enrich his attractive lectures, and in return M. Girard offered them advice suggested by his experience and his own investigations. In a few years his masterly researches on vegetable fibres, wheat, farinas, sugars and woods had made him the first authority upon these matters, and he was frequently consulted by the government on subjects concerning the great industries of paper, alcohol, sugar, flour and bakery. The study of these products led to inquiries as to crops. In this new direction M. Girard rendered valuable services, and, after his researches on the cultivation of sugar-beet and the improvement of the potato, he obtained among agriculturists the same position and the same sympathies which he enjoyed in the industrial world. Though weakened in recent years by illness, and saddened by repeated troubles, he nevertheless continued his work. He died while occupied in applying to wheat of various origins the new methods of analysis which were the subject of a recent communication to the Academy. The vacancy which his death has caused enables us to estimate the high place which he occupied in scientific societies and in the committees in which he took part."

THE Sanitary Institute of Great Britain will hold its next meeting in Birmingham, commencing on September 27th. Sir Joseph Fayrer, Bart, is the President.

THE twenty-seventh Congress of German Surgeons was opened on April 13th in the hall of the Langenbeckhaus in Berlin by the President, Professor Trendelenburg, of Leipzig. About 300 members were present. A donation was announced of 50,000 Marks from the Langenbeck family, the interest of which sum is to be devoted to studies in military surgery. Professor Hahn, of Berlin, was elected President for the next Congress.

THE Société Français de Physique held its annual exhibition of apparatus in its rooms on April 15th and 16th. Addresses were made by MM. Ducretet, Morin and Hurmuzescu.

THE regular public lecture for April of the N. Y. Academy of Sciences was given on the 27th inst., by Dr. James Douglas, his subject being the progress of mining and metallurgy during the last half century.

AT the Paris Museum of Natural History, M. Stanislas Meunier has begun a course of lectures on experimental geology in which he will discuss the attempts that have been made to reproduce artificially geological phenomena.

MR. HARVEY will give, at the approaching annual meeting of the Paris Academie des Inscriptions, an address on the introduction, in 1647, of the teaching of chemistry in France through the Scotchman Davisson.

WE referred recently to the efforts of the Prince of Monaco for the establishment of an observatory in the Azores for meteorological, seismic and other observations. He addressed the Royal Society on the subject last week and proposed that the observatory be made international in character.